Appl. No. 09/522,711
Reply to Office Action of December 18, 2003

Attorney Docket: P65138US0

REMARKS

Applicant recognizes with appreciation that Claims 3 and 10 would be allowable if rewritten in independent form.

In this Amendment, Applicant has cancelled Claims 2, 4 – 7, 9, 11, 12, 14 and 16, without prejudice and disclaimer, has amended Claims 1, 3, 8, 10, 13 and 15, and added new Claims 17 – 20. Claims 1, 8, 13 and 15 have been amended to overcome the rejections and further specify the embodiments of the present invention. Claims 3 and 10 have been amended to avoid dependency on cancelled claims. Claims 17 – 20 have been added to specify other embodiments of the present invention. Newly added Claims 17 to 20 are supported by FIG. 5 and the disclosure on page 7, lines 24 to page 12, line 19 (particularly, on page 9, lines 5 to 11) of the specification. It is respectfully submitted that no new matter has been introduced by the amended claims. All claims are now present for examination and favorable reconsideration is respectfully requested in view of the preceding amendments and the following comments.

OBJECT TO ABSTRACT:

The Abstract has been objected as containing informalities. Applicant respectfully submits that the informalities have been corrected. In particular, "code" has been corrected to "coded". "Impulses ... is ..." has been corrected to "Impulses ... are ...." In addition, "per pixel block" has been amended to "per pixel" to be consistent with the amended claims.

REJECTIONS UNDER 35 U.S.C. § 102:

Claims 1 – 2 and 8 – 9 have been rejected under 35 U.S.C. § 102 (e) as allegedly being anticipated by Augenbraun et al. (US 5,654,759), hereinafter Augenbraun.

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Applicant traverses the rejection and respectfully submits that the present-claimed invention is not anticipated by the cited reference. At first, Claims 2 and 9 are cancelled, without prejudice and disclaimer. The rejection to Claims 2 and 9 is moot. In addition, it is respectfully submitted that Claims 1 and 8 are amended so that the input video signal is differentiated per pixel, not per pixel block, to obtain a differentiated signal. The amendment is supported by FIGS. 3A and 3B. FIG. 3A shows input video signal components for five pixel blocks. Each pixel block consists of eight pixels (page 7, lines 11 to 15). Each dot in these figures represents one pixel. The differentiated video signal shown in FIG. 3B indicates that the input video signal is differentiated per pixel, not per pixel block.

Claims 1 and 8 are further amended so that the detection signal is integrated for every N-th pixel of consecutive M pixels in a horizontal direction and for obtaining integrated detection signals corresponding to a first to an M-th pixel of the consecutive M pixels, respectively, M being the number of pixels per pixel block in the horizontal direction, and N being an integer among 1 to M. The number M of pixels per pixel block in the horizontal direction is, for example, eight (8) in FIG. 5. The amendment is supported by FIG. 5 and the disclosure on page 7, line 24 to page 12, line 19 of the specification.

Therefore, according to the amended claims, the input video signal coded and decoded per pixel block is differentiated per pixel to obtain a differentiated signal; the impulses of the differentiated signal are detected to obtain a detection signal carrying the impulses; the detection signal is integrated for every N-th pixel of consecutive M pixels in a horizontal direction and for obtaining integrated detection signals corresponding to a first to an M-th pixel of the consecutive M pixels, respectively, or over the entire frame or for all pixels of each frame of the video signal, M being the number of pixels per pixel block in the horizontal direction, and N being an integer among 1 to M; and the integrated detection signals and a reference signal are compared to each other to determine whether the block noise is generated on the input video signal.

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Augenbraun discloses a cost function (col. 8, lines 1 to 28). More specifically, it discloses the addition of the absolute differences of all pixels in neighbouring blocks (col. 8, lines 1 to 3). Augenbraun simplifies the calculation by using the pixels from the left and/or upper edges of the blocks (col. 8, lines 3 to 9). Moreover, it determines whether the block A is blocky by using the total of addition of the absolute differences of pixels at the boundary between the block A and the left-side neighbouring block B and addition of the absolute differences of pixels at the boundary between the block A and the upper-side neighbouring block C (FIG. 3) (col. 8, lines 14 to 28). These disclosures teach that Augenbraun's apparatus must detect the block boundary, which is discussed in the specification of the present invention (page 1, line 21 to page 2, line 15). Augenbraun does not disclose the above features. Therefore, the newly presented claims are not anticipated by Augenbraun and the rejection under 35 U.S.C. § 102 (b) has been overcome.

Accordingly, withdrawal of the rejections under 35 U.S.C. § 102 (b) is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103:

Claims 13 and 15 have been rejected under 35 U.S.C. § 103, as allegedly being obvious and unpatentable over Augenbraun et al. (US 5,654,759), hereinafter Augenbraun.

Applicant traverses the rejection. It is respectfully submitted that in view of the presently claimed invention, the rejection has been overcome. Firstly, as stated above, Claims 13 and 15 are amended so that the input video signal is differentiated per pixel, not per pixel block, to obtain a differentiated signal. In addition, Claims 13 and 15 are further amended so that the detection signal is integrated for every N-th pixel of consecutive M pixels in a horizontal direction and for obtaining integrated detection signals corresponding to a first to an M-th pixel of the consecutive M pixels, respectively,

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M being the number of pixels per pixel block in the horizontal direction, and N being an integer among 1 to M.

Augenbraun does not teach or suggest the present invention. Nowhere in Augenbraun or other prior art has suggestion or incentive to modify Augenbraun to achieve the present invention. One of ordinary skilled in the art would not discern the present invention at the time of its invention.
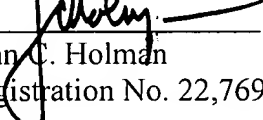
Therefore, the rejection under 35 U.S.C. § 103 has been overcome. Accordingly, withdrawal of the rejection under 35 U.S.C. § 103 is respectfully requested.

Having overcome all outstanding grounds of rejection, the application is now in condition for allowance, and prompt action toward that end is respectfully solicited.

Respectfully submitted,

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